ROYTEC
Global Separation Solutions
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BGRIMM

ROYTEC **FLOTATION** EQUIPMENT FOR WESTERN MARKETS

BGRIMM - MARKET LEADERS IN MINERAL FLOTATION
Supported by Roytec

BGRIMM **FLOTATION TECHNOLOGY FOR WESTERN MARKETS**

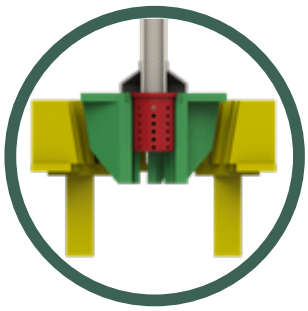
ROYTEC GLOBAL is an International Company specializing in Liquid / Solid and mineral Separation technologies for the Mining and Industrial sectors.

Roytec is privately owned by Directors and Managers. We are passionate about excellence in our services and we pride ourselves in delivery to our promises. Our equipment is fully supported by Roytec Specialists based in Johannesburg, South Africa; Perth, Australia; Toronto, Canada; and Yantai, China.

The Beijing General Research Institute for Mining & Metallurgy (BGRIMM) and Roytec Global have combined forces to offer Western clients access to the world leading BGRIMM flotation technology backed up with Roytec's local support, service and spares.

BGRIMM are China's leading Mineral Institute, established in 1956 and employing +3500 technical staff. Over the past 50 years BGRIMM have developed world leading flotation technology, with over 20,000 cells in the field. Many cells with capacities up to 320m³ have been put into successful operation over the past 10 years and BGRIMM have cell designs up to 680m³.

Intensive BGRIMM R&D has resulted in the most effective rotor / stator designs available and BGRIMM flotation cells consume considerably less power than global competitors. BGRIMM are well established in Southern Africa, with large plants in South Africa, Zambia, DRC and Mozambique. Since 2015 Roytec has been working closely with BGRIMM to ensure world class customer support for Western clients. Roytec's trained engineers and technicians offer assistance from the feasibility & proposal stage, thought project execution, construction & commissioning. After-commissioning services include maintenance contracts and spares stocked in Johannesburg. The partnership between BGRIMM and Roytec allows for clients to contract directly in China or in one of our global offices with manufacture alternatives in China or South Africa according to project requirements. All mechanical, electrical and control components fitted to the BGRIMM flotation cells are serviced in one of our global offices using our service engineers and reputable local vendors.



KYF forced air flotation cell

BF self-aspirated flotation cell

BGRIMM KYF FORCED AIR FLOTATION CELLS

KYF flotation cells are renowned for outstanding performance, characterised by ease of operation and low energy usage with superior slurry circulation, air distribution and bubble mineralisation. Decades of research & development, CFD, 3D-PIV and plant trials, have resulted in the KYF's novel Rotor, Stator and Air distributor design with well proven metallurgical performance on both coarse and fine mineral particles.

The KYF Rotor blades are set at a specific angle tangential to the air distributor (backward inclined). These angled Rotor blades present a larger blade surface, enabling more slurry to pass through the Rotor chamber enhancing particle suspension and air distribution with a power consumption 8% to 12% lower than radial Rotors. Bubble pre-mineralisation occurs inside of the rotor chamber, improving mineral recovery in both fine and coarse particle fractions.

The KYF flotation cell can be supplied with either "U" shaped tanks or Cylindrical tanks selected for each application's mineral properties, flotation characteristics, cell volume and plant layout requirements. Active volumes for single tank cells up to 680m³ are available.

BGRIMM BF SELF-ASPIRATED FLOTATION CELLS

The BF flotation cell is self-aspirated with an adjustable air intake. Most commonly used with "U" shaped tanks, high mass pulls are accommodated with double launders and mechanical froth paddle options. These cells are characterised by uncomplicated plant operation and simplicity of plant layout. The BF cells are available for tank sizes up to 40m³.

Unique Internal Pumping Action

Both the KYF and BF ranges are available with optional pump/agitator mechanisms designed to move froth and/or middlings from adjacent cell banks. This unique feature allows the flotation cells to be installed at a completely flat elevation with no external pumping requirements. This commonly used feature for tanks up to 40m³ can significantly reduce civil and piping costs for new plant.

BGRIMM COLUMN FLOTATION CELLS

BGRIMM supply column cells up to 4,5m diameter. A novel air sparger system recirculates slurry from the tank bottom into the air manifold and forces the mixture of air & slurry into the radial spargers. This results in extremely high air velocities, fine bubble formation and excellent air dispersion at the sparger outlet. Sparger nozzles are ceramic material ensuring long life.

An internal froth crowder / launder combination means short froth travel distance and reduced possibility of detachment of mineral particles.

The tailings discharge box is positioned on the upper part of the column cell tank (below slurry inlet level) to allow the control valves to work at low pressure and reduce slurry line velocities.

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FLOTATION REFERENCES

Over 20,000 sets of BGRIMM flotation cells in operation - servicing over 4,000 mine sites around the world

TOROMOCHO Copper Mine Project (Peru)

Aker Solutions, the EPCM contractor for the TOROMOCHO Copper Mine Project, selected BGRIMM, to supply the flotation equipment requirements. A total of 61 BGRIMM flotation cells and flotation columns were delivered, including KYF-320m³, KYF-100m³, KYF-30m³, KYF-10m³ and KYF-5m³ flotation cells as well as KYZ4314 and KYZ2514 flotation columns. TOROMOCHO is one of the world's largest concentrators located in Central Peru with a daily processing capacity of 150,000tpd

Rocklands project (Australia)

Cudeco, an Australia listed company, procured 22 flotation cells including 7 KYF-100m³, 13 KYF-24m³ and 2 KYF-16m³ flotation cells from BGRIMM for its Rocklands Project in 2010.

Wunugetushan Mine (China)

Inner Mongolian Copper and Molybdenum Concentrator, a subsidiary company of China National Gold Group Corporation, procured 137 flotation cells including 16 KYF-320m³, 32 KYF-160m³, and 15 KYF-40m³ BGRIMM flotation cells for its concentrator with a total processing capacity of 78,000tpd.

PMC (South Africa)

Palabora Mining Lift II project. Flotation capacity expansion was awarded to BGRIMM in 2015.

The scope of supply includes:
7 x KYF-320m³ Roughers
5 x KYF-100m³ Scavengers and
3 x KYF-30m³ cleaners to treat
50 000 tpd.

Nokeng Fluorspar Mine (South Africa)

SepFluor's Nokeng Fluorspar Mine based near Bronkhorsrspruit in South Africa procured 62 flotation cells including 26 off KYF-20, 33 off KYF-10 and 3 off KYF-4 flotation cells from Roytec. Nokeng has a processing capacity of 2000 tons per day.

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Other ROYTEC equipment

- Vacuum Belt Filters & Vacuum Disc Filters
- Thickeners using RadFlow Feedwell Technology
- Dynamic Bed & Pin Bed Clarifiers
- Filter Presses & Tower Presses
- Ceramic Disc Filters
- Dual Media Filters
- Ion Exchange Systems
- Flocculant/Coagulant Preparation and Dosing Plants
- Linear Screens

Other BGRIMM technologies

- Regrind Mills
- Magnetic Separators
- Advanced Control Systems
- On-stream X-ray fluorescent analysers
- Flotation Reagents

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